

1 Amendments to the Claims:

2       This listing of claims will replace all prior versions, and  
3 listings, of claims in the application using (Original) (Currently  
4 Amended) (New) (Canceled) nomenclature, as recited in the below  
5 listing of claims.

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7 1. (Currently Amended) A method for retrieving from a destination  
8 web content data specified by a source at a source internet  
9 protocol address (IPA) and corresponding to a uniform resource  
10 locator (URL) associated with a web server, the method comprising  
11 the steps of,

12       ~~destination IPA~~ storing at a proximal IPA in a forwarding  
13 table a destination IPA,

14       ~~destination URL identifier~~ storing at the proximal IPA in the  
15 forwarding table a destination URL identifier for identifying the  
16 web content data, the destination URL identifier is stored in the  
17 forwarding table in reference to the destination IPA,

18       receiving from the source a source URL identifier,

19       matching the source URL identifier to the destination URL  
20 identifier,

21 cross referencing at the proximal IPA in the forwarding table the  
22 stored destination URL identifier with the destination IPA,

23       ~~destination URL identifier~~ transmitting the destination URL  
24 identifier to the destination at the destination IPA, and  
25 transmitting from the destination at the destination IPA the web  
26 content data to retrieve the web content data from the destination.

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1 2. (Original) The method of claim 1 wherein,  
2 the destination is a distal web cache,  
3 the source is a user browser at a source IPA,  
4 the source URL identifier is an exact URL,  
5 the proximal IPA is an IPA of a proximal web cache,  
6 the distal web cache transmits the web content data to the source  
7 at the source IPA,  
8 the method further comprising the steps of  
9 receiving the source IPA at the proximal web cache, and  
10 transmitting the source IPA to the distal web cache, the  
11 distal cache transmitting the web content data to the user browser.  
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13 3. (Original) The method of claim 1 wherein,  
14 the destination is a distal web cache,  
15 the destination IPA is a distal web cache IPA  
16 the source is a user browser at a source IPA,  
17 the source URL identifier is an exact URL,  
18 the destination URL identifier is an encoded URL,  
19 the proximal IPA is an IPA of a proximal web cache,  
20 the distal web cache transmits the web content data to the proximal  
21 web cache,  
22 the method further comprising the steps of  
23 receiving the source IPA at the proximal web cache,  
24 transmitting the proximal IPA to the distal web cache,  
25 receiving from the distal web cache the web content data at  
26 the proximal web cache, and  
27 transmitting the web content data from the proximal web cache  
28 to the user browser at the source IPA.

1 4. (Original) The method of claim 1 wherein the destination URL  
2 identifier in the forwarding table is a series of compression codes  
3 corresponding to respective linked segments of the URL, each of the  
4 linked segments corresponding to one or more components of the URL  
5 to decompose the URL into the linked segments, the linked segments  
6 are linked by parental pointers from a first linked segment having  
7 no parental pointer through remaining linked segments having  
8 respective parental pointers to a preceding one of the linked  
9 segments to a last linked segment reference to the destination IPA.

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13 5. (Original) The method of claim 4 wherein  
14 the destination URL identifier references the URL comprising  
15 scheme, name, path and type components and delimiters,  
16 the linked segments correspond to successive concatenated  
17 components of the URL and are respectively referenced to one or  
18 more of the successive concatenated components of the URL,  
19 each of the compression codes are referenced to the linked segments  
20 and to the one or more successive concatenated components through  
21 pointers for respectively cross referencing the compression codes  
22 to the linked segments, and  
23 the destination IPA is referenced to the destination URL identifier  
24 when the all of the respective compression codes through the  
25 respective pointers point to a complete set of linked segments from  
26 the first linked segment to the last linked segment.

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1 6. (Original) The method of claim 5 wherein,  
2 the proximal IPA becomes a new source IPA as the destination  
3 IPA becomes a new proximal IPA communicating the destination URL  
4 identifier to a new destination IPA all of which occurring a  
5 plurality of times for indicating a number of hops from the  
6 proximal IPA to a last one of a respective plurality of new  
7 destination IPAs, the last one of the respective plurality of new  
8 destination IPA distally storing the web content data, and  
9 the last linked segment is further referenced to a distance metric  
10 indicating a number of hops through the new destination IPAs from  
11 the proximal IPA.

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13 7. (Original) The method of claim 1 wherein,  
14 the destination stores a set of web content data one of which is  
15 the web content data, the set of web content data corresponding to  
16 a wildcard URL for indicating a set of URLs one of which is the  
17 URL,  
18 the destination URL identifier is a wildcard URL identifier,  
19 the source URL identifier is an exact URL having a plurality of URL  
20 components a first of portion of which serving as a prefix to a  
21 remaining portion of the exact URL, and  
22 the matching step is a prefix matching step for matching the first  
23 portion of the URL components of the exact URL to the wildcard URL  
24 identifier in the forwarding table.

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1 8. (Original) The method of claim 7 wherein  
2 the prefix matching step is a longest prefix matching step serving  
3 to match the longest first portion of the URL components of the  
4 exact URL to the wildcard URL among a plurality of wildcard URLs  
5 matching a shorter first portion of the URL components of the exact  
6 URL.

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8 9. (Currently Amended) A method for retrieving from a distal cache  
9 web content data specified by a user browser at a source internet  
10 protocol address (IPA) and corresponding to a uniform resource  
11 locator (URL) associated with a web server, the method comprising  
12 the steps of,

13 ~~distal~~ IPA storing at a proximal IPA in a forwarding table a  
14 distal IPA,

15 ~~distal URL identifier~~ storing at the proximal IPA in the  
16 forwarding table a distal URL identifier for identifying the web  
17 content data, the distal URL identifier is stored in the forwarding  
18 table in reference to the distal IPA,

19 receiving from the user browser a source URL identifier,  
20 matching the source URL identifier to the distal URL  
21 identifier,

22 cross referencing at the proximal IPA in the forwarding table the  
23 stored distal URL identifier with the distal IPA,

24 ~~distal URL identifier~~ transmitting the distal URL identifier  
25 to the distal destination at the destination IPA, and  
26 transmitting from the distal cache at the distal IPA the web  
27 content data to retrieve the web content data from the distal web  
28 cache.

1 10. (Original) The method of claim 9 wherein the web content data  
2 is transmitted from the distal cache to the user browser during the  
3 transmitting step.

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5 11. (Original) The method of claim 9 wherein,  
6 the proximal IPA is a location of a proximal cache,  
7 the web content data is transmitted from the distal cache to  
8 the proximal cache during the transmitting step, and  
9 the web content data is further transmitted from the proximal  
10 cache to the user browser during the transmitting step.

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12. (Currently Amended) A method for retrieving from a distal web  
cache web content data specified by a user browser at a source  
internet protocol address (IPA) and corresponding to a uniform  
resource locator (URL) associated with a web server, the method  
comprising the steps of,  
~~destination IPA~~ storing at a proximal IPA in a forwarding  
table a distal IPA,  
~~distal URL identifier~~ storing at the proximal IPA in the  
forwarding table a distal URL identifier for identifying the web  
content data stored in the distal cache, the distal URL identifier  
is stored in the forwarding table in reference to the destination  
IPA,  
receiving from the user browser a source URL identifier,  
matching the source URL identifier to the destination URL  
identifier,  
cross referencing at the proximal IPA in the forwarding table the  
stored distal URL identifier with the destination IPA,  
~~distal URL identifier~~ transmitting the distal URL identifier  
to the destination at the destination IPA, and  
transmitting from the destination at the destination IPA the web  
content data for retrieving the web content data from the distal  
cache.

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1 13. (Currently Amended) The method of claim 12 further comprising  
2 the step of,  
3 repeating the all of the steps one or more times, the destination  
4 is one or more intermediate cooperative web caches having a  
5 respective one or more intermediate IPAs and respectively storing  
6 the distal URL identifier with a respective next one of the one or  
7 more intermediate IPAs and lastly the distal IPA, each of the one  
8 or more intermediate IPAs being a location a next one of the one or  
9 more intermediate cooperative web caches and lastly the distal IPA,  
10 the one or more intermediate IPAs indicating next web hop locations  
11 in transmitting the distal URL through the intermediate cooperative  
12 web caches to the distal web cache, the last one of one or more  
13 intermediate cooperative web caches referencing the distal URL to  
14 the distal IPA for retrieving the web content data from the distal  
15 cache.

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1 14. (Original) The method of claim 13 wherein the repeated  
2 transmitting step,

3 the web content data is transmitting from the distal cache  
4 through the one or more intermediate web caches and through a  
5 proximal cache at the proximal IPA to the user browser.

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9 15. (Original) The method of claim 14 further comprising the step  
10 of,

11 assigning the proximal cache and one or more intermediate caches  
12 and the distal cache to one or more groups of cooperative caches in  
13 a network of grouped cooperative web caches, the web content data  
14 being transmitted from a first one of the one or more intermediate  
15 caches to a second one of the one or more intermediate caches, the  
16 first one and second one of the one or more intermediate caches  
17 being within the same group.

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